

IN THE CLAIMS:

The following is a complete and current set of the claims. This set of claims supercedes all earlier versions and sets of the claims.

Claim 1 (currently amended): An image processing method ~~of inputting a color image signal and correcting the color image signal according to an observation condition; comprising the steps of:~~

~~inputting receiving an input color the image signal;~~
~~judging determining whether or not the an imputted input color image signal received in the receiving step represents achromatic color;~~
~~correcting the imputted input color image signal according to the an observation condition to produce a corrected input color image signal; and~~
~~controlling converting, after the said correcting step, according to a result in said judging step, such that the corrected imputted input color image signal remains produced in the correcting step into an achromatic color image signal when it is judged determined in said judging determining step that the imputted input color image signal represents achromatic color.~~

Claim 2: (currently amended) A method according to Claim 1, wherein the ~~input color image signal depends on an input-side observation condition and is device-independent does not depend on a device.~~

Claim 3: (currently amended) A method according to Claim 1, wherein the input color image signal is represented by an RGB color space according to a standard white point of ~~an~~ input-side observation light.

Claim 4 (currently amended): A method according to Claim 1, wherein, in said correcting step, the inputted input color image signal, ~~depending which depends~~ on the an input-side observation condition, is ~~converted~~ transformed into a corrected input color image signal, which depends ~~depending~~ on an output-side observation condition, and wherein, when the inputted input color image signal, which depends ~~depending~~ on the input-side observation condition, represents is determined in the determining step to represent achromatic color, the corrected inputted achromatic color image signal produced in the converting step by converting the corrected input color image signal produce in the correcting step, is an achromatic color signal according to under a standard white point of ~~an~~ output-side observation light.

Claim 5 (currently amended): A method according to Claim 1, wherein the ~~further comprising a~~ the converting step further comprises the step of converting transforming of converting a device-dependent input color image signal into a device-independent input color image signal based on the basis of an input profile, and wherein whether or not said transforming controlling step is executed depends on information in the input profile.

Claim 6 (currently amended): A method according to Claim 1, wherein whether or not said correcting controlling step is executed depends on a user's manual instruction.

Claim 7 (currently amended): A method according to Claim 1, wherein the converting step further comprising comprises converting the corrected input imputted color image signal produced in the correcting step into a an output-device-dependent color image signal depending on an output device, on the basis of based on an output profile.

Claim 8 (currently amended): An image processing apparatus comprising:
an input unit adapted to receive an input a color image signal;
a judgment an achromatic color detection unit adapted to determine judge whether or not the imputted an input color image signal received by the input unit represents achromatic color;
a correction unit adapted to correct the imputted input color image signal according to an observation condition to produce a corrected input color image signal; and
a conversion control unit adapted to convert control said correction unit according to a result by said judgment unit, such that the corrected imputted input color image signal remains produced by the correction unit into an achromatic color image signal when it is determined judged by said achromatic color detection judgement unit that the imputted color image signal represents achromatic color.

Claim 9 (currently amended): A recording medium for storing a computer-readable program executing an image processing method, said program comprising:

code for ~~inputting a~~ receiving an input color image signal;

code for ~~judging determining~~ whether or not a received input the inputted color image signal represents achromatic color;

code for correcting the inputted input color image signal according to an observation condition to produce a corrected input color image signal; and

code for converting controlling said code for a correcting step according to a result by ~~said code for a judging step~~, such that the corrected inputted input color image signal produced by the code for correcting remains into an achromatic color image signal when it is determined judged by said code for determining a judging step that the inputted input color image signal represents achromatic color.

Claim 10: (currently amended) A method according to claim 1, further comprising the steps of:

obtaining a conversion condition for converting the inputted inputted color image signal ~~of the inputting step~~ into a device-independent color space, ~~not~~ depending ~~on a color device, based on the basis of~~ a standard white point of input-side light the color image signal; and

converting the inputted input color image signal according to the conversion condition, and

wherein said judging determining step includes judging determining whether or not the converted input color image signal represents achromatic color.

Claim 11: (currently amended): A method according to Claim 10, wherein the device-independent color space is defined by red, green and blue three primary color components.

Claim 12: A method according to Claim 1, wherein the correction of the input color image signal according to the observation condition in said correcting step is based on a correction process which uses a color appearance model and which performs a non-linear correction.

Claims 13, 14 and 15 (canceled).

Claim 16 (withdrawn and currently amended): An image processing method comprising the steps of:

converting, based on an input profile, ~~a~~ an input-device-dependent color image signal ~~depending on an input device~~ to a an input-device-independent color image signal, which depends depending on an input-side observation condition ~~and not depending on the input device~~;

converting, using a conversion condition according to a standard white point of ~~an~~ the input-side observation condition, the input-device-independent color image signal, which is depends depending on the input-side observation condition, ~~and not depending on the input device~~ to a an input-device-independent color image signal composed of a red component, a green component, and a blue component, and which

depends depending on the input-side observation condition ~~and not depending on the input device;~~

correcting, using a non-linear model according to the input-side observation condition and an output-side observation condition, the color image signal to generate a color image signal according to the output-side observation condition;

converting, based on an output profile, the color image signal according to the output-side observation condition to ~~a~~ an output-device-dependent color image signal ~~depending on an output device~~;

outputting the color image signal ~~depending on the output device~~;
determining ~~judging~~ whether or not the color image signal represents achromatic color by determining ~~judging~~ whether or not the red component, the green component, and the blue component, comprising ~~composing~~ the output-device-dependent color image signal, are approximately equal the same,

wherein, when it is determined ~~judged~~ in said determining ~~judging~~ step that the color image signal represents achromatic color, correcting the color image signal according to the output-side observation condition to represent ~~the~~ achromatic color and executing said ~~output profile based~~ converting step based on the output profile.

Claim 17 (withdrawn and currently amended): An image processing method according to Claim 16, wherein, whether or not to execute said correcting step to generate the color image signal which represents ~~represent~~ the achromatic color depends on information acquired from the input profile and the output profile.

Claim 18 (withdrawn and currently amended): A recording medium for storing a program executing an image processing method, said program comprising:

code for converting, based on an input profile, a an input-device-dependent color image signal ~~depending on an input device~~ to a an input-device-independent color image signal, which is depends depending on an input-side observation condition ~~and not depending on the input device~~;

code for converting, using a conversion condition according to a standard white point of the input-side observation condition, the input-device-independent color image signal, which is depends depending on the input-side observation condition ~~and not depending on the input device~~ to a an input-device-independent color image signal composed of a red component, a green component, and a blue component, and which depends depending on the input-side observation condition ~~and not depending on the input device~~;

code for correcting, using a non-linear model according to the input-side observation condition and an output-side observation condition, the color image signal to generate a color image signal according to the output-side observation condition;

code for converting, based on an output profile, the color image signal according to the output-side observation condition to a an output-device dependent color image signal ~~depending on an output device~~;

code for outputting the color image signal ~~depending on the output device~~;

code for determining judging whether or not the color image signal represents achromatic color by judging determining whether or not the red component, the

green component, and the blue component, comprising the color image signal, are approximately equal the same,

wherein, when it is determined judged in said code for a determining judging step that the color image signal represents achromatic color, correcting the color image signal according to the output-side observation condition to represent the achromatic color, and executing said code for an the output profile-based converting step based on the output profile.